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Mississippi River Bridge Report on Public-Private Partnerships

The Regional Business Council Mississippi River Bridge Task Force:

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Over the last 45 days we have gathered, from some of the leading authorities across the country, information on public-private partnerships commonly referred to as P3 projects. The scope of our study was to evaluate how a public-private partnership might be valuable for leaders in Missouri and Illinois to look at as a potential vehicle to fund the Mississippi River Bridge project.

We are united in our staunch belief that a Mississippi River Bridge is absolutely essential for the further economic development of this region. At the same time, we are aware that limited state and federal resources coupled with the growing demand nationally for this type of funding makes it important for states to look critically at how to creatively fund a project of this scope as effectively and efficiently as possible.

We are sensitive that this will be a politically complex project. However, we are heartened by the outstanding leadership, in both states, who are equally determined to work cooperatively to make sure this bridge is not only built, but built in a timely manner that maximizes value to both states and its citizens.

We hope the information contained in this report will begin earnest discussions and negotiations as to what is the best way to build the Mississippi River Bridge by 2012. Although, we stand ready to be helpful in any way we can in the process, our primary role to date has been to bring new information on public-private partnerships to the project negotiations. Should you have any questions please feel free to contact members of the RBC Task Force.

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Report on Private-Public Partnerships

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Executive Summary

A new interstate Mississippi River Bridge was recommended in government reports in 1980, 1985 and 1990. Formal location studies began in May 1992, with subsequent site selection and environmental impact assessments. In the fall of 2005, area legislators were able to secure federal funding to help finance the construction of a new bridge. Despite the significant federal commitment, there is still a large, unfunded cost of over $600 million that must be financed before the bridge can become a reality.

It appears that is will be very difficult for the governments of Illinois and Missouri to fund this bridge from existing sources. Several options to finance the funding gap are being considered. One option, public-private partnerships (PPP), is the subject of this document. There is ample evidence that the private sector, with its access to funds in the international capital markets, can be a good partner to both states to bring the new Mississippi River span, the centerpiece of the project, to construction and completion in a timely manner. The best way to accomplish this will be to call for investor proposals to finance, build and operate the bridge itself as a long-term toll concession. In addition, selecting PPP will free up funds for many other desperately needed projects in both states.

Our elected leaders deserve credit for having achieved a publicly accepted plan for the bridge and its approaches. Few contest the need for the project. The location of the crossing and its approaches has met with broad-based public approval. The design of the bridge and the approaches has undergone exhaustive discussion and refinement, in large part to help reduce the preliminary cost estimate. In short, we have consensus on the project.

Recent revisions to the bridge design have reduced the cost estimate from $1.6 billion to a current estimate of $910 million. The federal commitment to this project and required matching funds is $299 million, leaving a gap of $611 million.

Some officials believe they can obtain another $250 million as an earmark in the next six-year highway bill due to be enacted in 2009. However, the last highway bill, due in 2003, was not enacted until two years after its due date. A repeat performance could delay any decision until 2011. Moreover, federal earmarks have come under intense scrutiny and criticism; concurrently, the need for transportation dollars has dramatically increased, especially in light of our recent national disasters. The federal budget is stretched beyond the rate of growth of the economy. Our study of PPP is an investigation of one solution to fill the potential and real funding gap for this project.

Rationale for tolls

The St. Louis Regional Business Council (RBC) commissioned a study by Goldman, Sachs & Co. (Goldman Sachs) to ascertain the feasibility of a toll concession. Goldman Sachs is a leading Wall Street investment banking company with extensive experience in large infrastructure projects and toll concessions. It assisted the City of Chicago to realize $1.8 billion by auctioning the Chicago Skyway and turning it into a PPP concession. Most recently, Goldman Sachs advised the State of Indiana on a concession sale for the Indiana Toll Road, resulting in a bid of over $3.8 billion for a 75-year lease on the facility.

Goldman Sachs reports that a concession for the new I-70 Mississippi River Bridge "is a viable alternative" and reports that "a wide range of values is achievable." They believe a concession should potentially raise $700 million to $950 million based on an average $2.00 toll increasing at 2.5% a year over a 99 year concession with a 75% operating margin. This valuation is based upon a set of assumptions, particularly around traffic flows, and would need to be validated prior to moving forward. The model assumes all

existing bridges remain toll free and the proposed bridge has an opening year average daily vehicle rate of 47,000, increasing annually at a rate of 2.5%. This valuation assumes that the concessionaire bears responsibility for payment of all operating and maintenance expenses associated with the bridge, as well as a set of capital expenditures.

Goldman Sachs reports that a concession sale garners more value for the taxpayers than a traditional public authority financing. Public authorities typically structure loans based on no more than 40 years payoff of debt, and assume no residual value. By contrast, with a toll concession, of typically 75 to 100 years, the investors see growth in value well beyond 40 years and do not require the same "coverage ratio" as would be necessary on a bond financing secured by toll revenues. Given these factors, investors will pay and invest far more up front than can be raised in a traditional public authority bond sale. Another benefit of the PPP model is the efficiency with which private operators are likely to be able to operate the facility, which is priced into the value paid for the concession. Additional value is derived from the tax treatment of depreciation and interest cost deductibility their cost of capital and increasing the amount they may pay for a lease on an asset.

Further delay unacceptable
The future economic wellbeing and quality of life of the St Louis region depends heavily on launching construction of the new bridge as soon as possible. Both the Missouri and Illinois Departments of Transportation believe that, with a financing plan in place, construction can begin in 2007. We believe that a public-private partnership is a viable mechanism to close the funding gap between federal funding and the estimated cost for constructing the bridge and would enable the most expedient completion of the project. Every year of delay on the bridge undermines the economic viability of the region's core and subjects its citizens to unnecessary hazards delay and stress. Delays will also likely engender significant increases in the final cost of the bridge.

We are aware that there are some concerns, especially by Illinois leadership, concerning tolls, but the use of the I-70 Toll Bridge would be optional. Those who do not want to pay a toll will be able to continue to use the Poplar Street and other free bridges. To generate usage, the concessionaire investors will have to provide a service reflected in time savings and comfort significantly valued by commercial and public motorists. The concessionaire will have a powerful incentive, therefore, not to overspend on the bridge, or overcharge for tolls, while designing sufficient capacity. Once built, the bridge must be effectively managed to provide superior service, as the bottom line will depend on attracting motorists who have alternative routes. In addition, because of potential cost savings to both states, some initial toll subsidy called "shadow tolls" could be explored by either state.

The Private Sector and Tolling

Background Private Sector financing of roads goes back to the earliest days of the Republic, indeed into Colonial times. It began with moves to replace fords and ferries with bridges and to keep roads paved with stone. Ferry masters often got a bridge "charter" from the state, whereby in return for the commitment to build a bridge they were given a right to collect a toll for passage. All over America, bridges were initially privately financed, mostly by family companies. A few survive to this day, exemplified by Dingman's Ferry Toll Bridge over the Delaware River, about 55 miles northwest of New York City, in what has become the Delaware River Water Gap National Park.

The country's major highways were first built as toll roads. Local roads were built by 'levee' – a statutory obligation to contribute one's labor several days a year to fixing the

roads, or to opt out by paying local government the equivalent daily wage rate so they could hire laborers. But the locals did not see why they should labor on behalf of far-away merchants on the highways. Tax revenues were usually unavailable. So roads used by long-distance traffic – highways - tended to be turned over to turnpike companies to maintain. They in turn paid maintenance and serviced the capital they had raised with a fee on users – a toll. Historians estimate that, in the 19th century, between 2,500 and 3,200 companies operated toll roads; and somewhere between 30,000 and 50,000 miles of road were tolled by those companies (Daniel Klein, Santa Clara University, California).

In states such as New York and Pennsylvania, the most common joint stock companies in the 1810s and 1820s were turnpike, toll bridge or toll road companies. Mountain states, including Colorado, Idaho, Montana, Utah and Nevada, were opened up to mining by toll road companies. There were surges, then periods of retrenchment. Toll roads competed with one another and with canals. In the 1830s railroads became competition and many toll road companies went out of business. It was so common for toll companies to build the major bridges that, in the unusual case where a government managed to find the funds the resulting bridges were often called government bridges. In St Louis, the Eads Bridge was financed by investors.

Two things changed all that. The scandals surrounding the building of the Brooklyn Bridge, and the availability of gas taxes pioneered in 1920 allowed governments to take over the building and financing of bridges. From the 1920s to the 1950s, a series of remarkable bridges, tunnels, parkways and expressways was built. The public authority model established by Moses and Tobin was widely copied across America and remains powerful today.

The gasoline tax pioneered in Oregon in the 1920s was quickly adopted by other states. The gasoline and diesel fuel tax was initially used to create "trust funds" dedicated to road construction and maintenance. For over half a century this proved to be the most viable means of financing new roads, especially as manual toll collection was more expensive to operate. However, since the years of the Nixon Administration, gasoline taxes and trust funds have been increasingly used for rail transit and environmental enhancements. Since maintenance and operating costs of highways have soared, little funding has been available for new highway capacity. As less of their gas tax money has gone towards improving infrastructure, the American public has become highly antagonistic toward any proposals to raise the gas tax – at all levels of government. Most gas taxes are set at a flat rate, not a percentage of prices, so inflation erodes the purchasing power of gas tax revenues. More fuel-efficient cars, including more use of diesel and hybrid engines, threaten to turn that erosion into a chronic decline.

The toll technology revolution

At the same time, tolls, or user fees, have become steadily less expensive to collect and more acceptable to motorists. Starting in 1989, the use of windshield-mounted transponders has allowed cashless toll collection. At first, most transponder or electronic tolling was conducted in single lanes with equipment retrofitted into old-style barrier toll plazas. Motorists could now roll through at 5 to 15 mph. In the past few years, development has enabled open-road tolling in which the center of the barrier plaza is bulldozed, and transponder tolling is conducted from a road-spanning overhead gantry in a section of multi-lane highway operating at full highway speed. On established toll roads, cash tolling is continued off to the side of the high-speed open road section.

Further developments include a new, batteryless, super-cheap sticker tag, which is a third of the price of present battery-powered transponders allowing the complete cessation of any on-road cash toll collection. Camera systems mounted on the over-the-road gantries can now record license plate numbers of passing vehicles; by accessing motor registry

databases, owner names and addresses are extracted and bills and/or toll violation notices are sent. The new sticker tags, about the size of a credit card, are another revolution in technology. As they seem likely to become negligible in cost, the toll authorities will be able to give them away. As of 2005, close to two-thirds of the $8 billion collected in tolls were collected by transponders. The other third are occasional users of the toll facility or visitors to the area, and therefore unlikely to purchase a $25 transponder.

Toll roads are now being built with no cash collection at all. Under full open road tolling, no one stops to pay a toll; no wide toll plaza with booths must be built and no labor costs are incurred. The 91 Express Lanes and I-15 HOT lanes in Southern California, I-394 MnPASS Lanes in Minneapolis, Minnesota, and the Westpark Tollway in Houston, Texas are examples of cashless, full open-road tolling in the U.S. Outside the U.S. the Melbourne, Australia CityLink toll road, E-470 in Toronto, Canada, three interconnected toll roads in Santiago, Chile, Singapore toll roads, H6 Trans Israel Highway, Central London Congestion Charging scheme and trucks tolling on the German and Austrian autobahns all use cashless open-road tolling with a combination of transponders and license plate-readable cameras. This is widely seen as "the way of the future" for toll roads. If it is of benefit to motorists, one or two lanes for cash collection and the "human touch" can be provided at a roadside service plaza off the main line of the toll road.

Toll authorities like this scenario because toll collection costs are significantly reduced and traffic flow is improved. Manual toll collectors can handle in the range of 300 to 600 vehicles per hour, coin machines 600 to 900. Single-lane roll-through transponder tolling can handle 1,000 to 1,400; open-road tolling can handle 2,000 to 2,500 per hour. This also puts an end to the frequent and disruptive fender benders, occasional serious rear-enders and hits on tollbooths from inattentive drivers.

Motorists like open-road tolling because they do not have to assemble coins or bills, queue and roll down their window every time they pay a toll. The transponder toll account becomes one of a number of monthly payments along with a mortgage, utilities and telephone, and is usually among the smaller fees. In the past, the motorist focused on the toll every time it had to be paid and was often irritated about the queue at the toll plaza. Indeed, on many toll roads the process of paying the toll was more painful than the toll itself.

In the wake of the technological revolution which has transformed toll collection in the past two decades, toll authorities have been able to deliver a greatly improved service to their patrons, and those patrons have become willing to accept significant toll rate increases.

Investor interest

These developments have made investors more interested in toll facilities. They are, after all, in essence a business. Capital must be raised based on prospect of a return on investment. This is an investment in a productive capital asset – a road or a bridge or a tunnel – which provides a service. This service is the pavement which allows a speedy, safe and direct journey. It has to be sufficiently superior to alternatives to ensure that people voluntarily pay the toll to use it. The service can be sold to users for a fee because access to the facility can be made conditional on payment of the toll. The job of the toll road management is to invest wisely in capital investment and to design and manage the facility in such a way that it provides services of greater value to customers than the costs – capital and operating. To expand the business, a rate of return on investment is needed that is competitive with alternatives.

Over the great range of goods and services provided in the economy, business is usually conducted by investor-owned businesses rather than by governments. Political opinion,

limitations on hiring and contracting, and complying with the general restrictions that arise when dealing with a legislative body all contribute to the challenging environment that exists when government tries to enter the business world.

Public authority toll roads are pulled in two different directions. The capital markets, which buy their bonds, pull them in the direction of independence from political control so they will be run in a manner which will generate sufficient revenue to service their debt. However, they are also pulled in the direction of "accountability." If their commissioners are appointed for long terms, they are accused of becoming a "power unto themselves" and not accountable. Thus, such roads tend to be launched as independent entities to raise capital, and then drawn into the political arena. Sometimes they are incorporated into the state department of transportation, until the argument for independence is made again. This tension, and the resulting instability, seems inherent when a government authority conducts a business.

These problems with the public authority model have led to a widespread international movement toward investor toll concessions.

Toll concessions in the U.S.
In the U.S. the following major toll concessions have been implemented:

- Ambassador Bridge, chartered in perpetuity to the Detroit International Bridge Company by the City of Detroit, June 1927, opened in November 1929, and has been operated by privately held companies ever since. When it was opened, it was the world's longest suspension bridge. The Ambassador Bridge is the major trucking route between Canada and the U.S. and carries some 9,000 heavy trucks a day.

- Dulles Greenway in northern Virginia, a 40-year concession to Toll Roads Investors Partnership II in 1993, opened the 14-mile toll road in September 1995. The concession term has since been extended by 20 years to allow the owners to raise additional capital for widening, adding new interchanges and improving toll collection. Initially a joint venture comprising a local family company, Autostrade of Italy and a construction company, it was acquired by Macquarie in 2005.

- 91 Express Lanes in Orange County, California, concessioned for 45 years to California Private Transportation Company in 1991, opened four Express Lanes 10 miles long in December 1995, and was later purchased by Orange County Transportation Authority.

- Camino Colombia Toll Road, Laredo, Texas was concessioned to approximately a dozen local landowners who had formed Camino Colombia Inc in the mid-1990s. The 22-mile toll road opened in October 2000 and was auctioned in bankruptcy in January 2004, with the Texas Department of Transportation buying it in May 2004.

- South Bay Expressway due to open in 2007, an eight-mile toll road on the eastern fringe of the San Diego area, was concessioned for 45 years by the state of California to California Transportation Ventures in 1991. Construction only began in 2003 following protracted litigation and environmental permitting. California Transportation Ventures was formed by Parsons Brinkerhoff which took the project through to full permitting and environmental clearance, at which point it was sold to Macquarie, which financed and is building the road.

- Chicago Skyway, an established elevated toll road extending 8 miles from the Indiana state line to the Dan Ryan Expressway south of the Chicago Loop, was

concessioned for 99 years by the City of Chicago in January 2005. The Chicago Skyway Concession Company LLC is owned by CINTRA and Macquarie, two international toll road operators.

Another category of concession is to quasi-private not-for-profit corporations, which are granted the right to issue tax-exempt bonds under Regulation 63-20 of the tax code. These not-for-profits are formed by a developer company for project financing and operations. Since there is no equity, the bondholders assume all the risk as in a public toll authority. The developer company gets its fees on handover of the toll road to the not-for-profit and has no further monetary interest in the project although, as the instigator of the project, its success or failure reflects on its reputation. Under the tax code, the concessioning state DOT must stay at arms length from the governing board of the not-for-profit corporation. Concessions in this category include:

- Greenville Southern Connector, a 16-mile toll road on the southern side of Greenville, South Carolina was concessioned in 1996 to the Connector 2000 Association Inc. formed by Interwest Carolina Transportation Group LLC. The toll road opened in February 2001. It has failed to meet traffic and revenue expectations, and is regularly drawing on a reserve fund to service debt. It is considered likely the bondholders will take a substantial hit at some point.

- Pocahontas Parkway, Richmond Virginia or Virginia State Route 895 was developed by Fluor Corporation and concessioned to the not-for-profit Pocahontas Parkway Association. A distinctive feature of the Parkway is the major interchange with I-95 and a high level bridge subsequently named the Vietnam Veterans Memorial Bridge over the James River shipping channel of the Port of Richmond. It extends nine miles westerly to Richmond International Airport and the belt route, I-295. It opened in stages in October 2002. The Pocahontas Parkway has generated traffic and revenue below the business plan and Virginia DOT's projections. The Parkway Association is negotiating a sale of the concession to Transurban, an international toll road company.

International use of toll concessions
International toll concessions are too numerous to list but a few highlights include:

- 407 ETR (Express Toll Route) in Toronto was Canada's first toll road in a large metropolitan area, opening in the spring of 1997. It has been a huge success with 300,000 trips per day. The central section was built by a provincial authority but, shortly after opening, was concessioned for 99 years. Investors are doubling its capacity with extensions, widening and new interchanges.

- England's first major new motorway in more than a decade, M6 Toll in the Birmingham area, was built under a long-term toll concession. Twenty-seven miles long and six lanes wide, it is located on the eastern and northern fringes of Britain's second largest metropolitan area, providing through traffic an alternate route to the older, free M6 motorway located closer through to the center of Birmingham.

- Ireland's prosperity has spawned a rapidly growing fleet of cars and other motor vehicles. It is making extensive use of concessions to build a motorway network.

- France developed a motorway system of 6,700 miles of which about 5,000 miles are based on toll concessions. Initially these concessions were granted to corporations whose stock was majority owned and, in some cases, fully owned by state agencies and state pension funds. However, stock in these corporations has

recently been sold to the general public and by bid to investor-owned toll companies. The largest toll companies are now publicly traded companies.

- Italy has 3,520 miles of toll road, the bulk of which are held by investor-owned concessionaires, including the world's single largest privately held network, Autostrade SpA.

- Spain (1,730 miles) (Portugal 813 miles) and Greece (570 miles) are other major concession-based systems.

- Germany and Holland, which traditionally had no tolls, have begun using toll concessions to build major highway tunnels under estuaries near ports.

- Toll concessions are planned for megacrossings including the world's longest suspension bridge in the Strait of Messina to provide a fixed crossing from Sicily to Italy and a 12-mile Fehmarnbelt bridge across the Baltic Sea from Denmark to Germany.

- Norway's rugged topography of fjords and steep mountains has made highway construction expensive. Over 100 bridges and tunnels and some 500 miles of road are toll financed with 39 major toll concessionaires.

- Israel's longest expressway, the 54-mile Trans Israel Highway or H6, was built under a toll concession with investors.

- East European countries are following suit including Croatia 577 miles operating, Hungary (357 miles), Serbia (375 miles) as well as Poland, Czech Republic, Ukraine and Bulgaria.

- Australia has used investor toll concessions for about ten urban expressways in the two principal cities of Sydney and Melbourne. Most of these involve difficult construction, including six tunnels of over one mile length, which have been used because of the unacceptability of acquiring and demolishing homes.

- South Africa has approximately 12 toll concessions.

- China has the world's largest expressway construction program under way with about 18,000 miles in use, 10,000 miles under construction and another 25,000 miles projected for 2020 for a network of 53,000 miles, comparable to the U.S. Interstate system. The Chinese network is over 90% toll financed, the great majority being concession companies, many of which have a major provincial government share.

- India has the world's second largest highway program after China. 9,000 miles of divided highway, some full expressway standard, others with some at-grade intersections, have been built in the past seven years. 20 toll concessions have been used so far, and another 48 concessions are in process of being let for $12.5 billion of new construction covering 6,000 miles of expressway and divided highway.

- Korea, like Taiwan and Japan, initially followed the U.S. public toll authority model but lately has been inviting investor toll concessions, including major bridges, urban toll roads and intraurban links.

- Malaysia has about ten concession toll roads in operation. The Philippines,

Indonesia, Thailand and Pakistan also have many toll roads.

- The Russian government has foreshadowed a toll concession to raise half of the capital needed to build a high-quality expressway covering the 405 miles between Moscow and St. Petersburg on the Baltic, a $5.3 billion project.

- Mexico, Brazil, Panama, Argentina and Chile have many concessions operating, and in planning. Santiago Chile has one of the world's most advanced open road tolling systems on three new toll roads built by separate concessionaires but designed for single transponder use. There is no cash toll collection and the concessionaires are required, under the terms of their concessions, to supply transponders free of charge.

Part of a broader movement

Investor financing of toll roads is part of a much broader movement worldwide for governments to move away from owning and managing businesses. For about 30 years, governments have been divesting themselves of banks, insurance companies, telephone services, railways, electricity, oil, steel plants, ship building, airlines, automobile manufacture, airports, ports and many other services.

Americans are not as aware of this privatization trend because, in America, very few of these industries were government owned to begin with. Without as much to privatize, privatization was not a big deal.

However, the Europeans, Latin Americans, Asians, Australians, New Zealanders and South Africans have all seen major and sustained privatization drives over several decades. In Europe, even the institutions of the European Community are firmly directed towards privatizing state business enterprises like toll roads.

Of course, the collapse of communism is part of the trend, as well. In economic and Marxist terms, communism was state ownership of the means of production. This led to state-owned farms, state-owned factories, state-owned stores and state-owned utilities. Neither communism nor socialism worked because they could not harness the power of the market to incentivize people to work cooperatively. Neither resources nor capital could be allocated properly, which led to low productivity and low standards of living. Talent was frustrated.

Socialism was based on a false assumption that central planners could foresee the future, and there was a failure to understand the creative power of markets to serve consumers, generate the productivity needed to pay good wages, handle risk and reward good judgment.

How to execute concessions

Like any undertaking, private concessions can be executed well or badly. The days of state-granted "charters" are, hopefully, over. Competitive bids are needed to assure that full value is captured for the public and to minimize the chances of inside dealing. The history of the Brooklyn Bridge needs to be remembered.

Steps:

1. Illinois and Missouri Departments of Transportation seek bids from qualified and experienced concessionaires for the project.
2. Set an aggressive timetable for project movement.
3. Hire experienced legal and financial advisors who have a track record of experience and success in managing such a process.

4. Commission a professional traffic and revenue study.
5. Publicize broadly a request for expressions of interest from all qualified and experienced companies, including international companies.
6. Ask qualified candidates to propose by a given date (perhaps 120 days).
7. Select concessionaire based on experience, capability and value offered to the states.

Length of concession
The concession contract is often up to 100 years.
The longer the term the investors can collect tolls, the higher the bids are likely to be, other things being equal. One key factor to note is that a concession term longer than the useful life of the project is required in order for investors to capture the tax value associated with the asset's depreciation.

Bridge improvements
The toll concessionaire has to describe an equitable and effective way of handling bridge improvements.

Toll rate controls
There are many ways to control tolls. The most common concession agreements allow increased toll rates on an annual basis in line with inflation. Others provide for toll setting by a state utilities regulatory body. Others have complex formulae, which usually include inflation and various other factors such as productivity. Some contracts are premised under the notion that no toll rate controls are needed since motorists will not be attracted to the road in sufficient numbers if the toll rates are too high, and that market competition is the best price setter.

Most contracts require traffic, revenue and other audited financial accounts to be published annually. Some require the operator's books to be open to inspection. Obviously, any concession contracts involving profit sharing need audited open accounts.

Case for a toll-concessioned Mississippi River Bridge

The new Mississippi River Bridge project is crucial for the economic future and quality of life of the St. Louis region. The Poplar Street Bridge, the present main crossing into and out of downtown St. Louis, is overloaded with traffic. It is overloaded, as it is forced to carry the traffic of three interstates, I-55, I-64 and I-70, as well as commuter traffic, into and out of the city. The volumes are too great and the number of ramps too complex.

A new bridge will improve travel time and safety and provide a high-capacity alternative route across the river in case of incidents. Separating I-70 traffic from I-64/I-55 traffic at the river will reduce stressful, unsafe and delaying traffic "weaves" on present approaches and departures from the Poplar Street Bridge. Vehicle miles traveled will be reduced since I-70 through-trips will be more direct and reduced by 3.5 km (2.2 miles). The more northerly location of the new crossing will reduce I-70/I-64 trips by 2.6 km (1.6 miles). Traffic connecting with the St. Louis central business district will be better distributed with approaches to the north as well as to the south.

Modeling shows that, without the increased capacity provided by the new I-70 bridge, the hours of congestion could double from 1.5 to 3 hours per day; average delays, now about ten minutes per trip, could reach as high as 55 minutes.

With the new bridge, access to the bridges will be improved and traffic siphoned away from the most congested parts of the interstate system. Improved connections from East

St Louis to the Missouri side of the river will enhance economic opportunities on both sides. Opportunities for jobs, business, education and recreation will be enhanced by the enlarged area accessible in reasonable trip times. By contrast, if the bridge remains unbuilt, jobs and businesses will continue to depart the urban core.

Accident rates on the present Poplar Street Bridge and approaching highways are three times higher than the average on Illinois and Missouri highways. Improvements associated with the new bridge should reduce accidents by 165 a year.

The new Mississippi Bridge project was launched in the 1990s with the understanding that the U.S. government would provide the majority of the funding. We wanted the biggest and the best, and we got it – on paper. It was a plan for a splendid and unique cable-stayed bridge with attractive leaning pylons of enormous height. The bridge had the longest span in the Western Hemisphere and was the widest-decked bridge of its kind. It completely spanned the river with its "feet" comfortably planted on dry land. But the cost grew to $1.6 billion.

Re-evaluation

Local officials recognized the $1.6 billion project would be problematic to fund and have reduced the costs and scope of the project in a "Re-evaluation" exercise (Re-evaluation, Briefing to Regional Business Council, 2005-10-19, by New Mississippi Bridge Project, PowerPoint).

The cost of the bridge itself has been reduced from $476 million to $396 million by shortening the main span from 2,000 feet to 1,500 feet. This puts the piers in the river, though not far from the shore on each side. The single-inclined pylons soaring 435 feet above the bridge deck in the 2001 design have been replaced by simple twin delta towers 331 feet high. The traffic decks remain six lanes in each direction, planned as four 12-foot lanes with breakdown shoulders on the left and right sides. The Missouri North Interchange to the immediate west of the bridge is being simplified; local street crossings are being combined, and the parkway entry into St Louis reduced for a total savings of $66 million. On the Illinois side, savings include reductions at the Cahokia Canal, simpler interchange design and other "value engineering" for economies of $26 million. Overall cost cutting totals $212 million out of about $1.6b or 13% bringing the project down to about $1.4 billion.

Other savings have been achieved in the re-evaluation by omitting major portions of the former project, now to be completed separately. These include the Illinois Route 3 Relocation ($160 million), the I-64 Connector ($63 million), the Tri-Level Interchange of I-70/I-64/I-55 ($251 million), and the Poplar Street Approaches ($81 million). The project, therefore, saves over $600 million by scope changes – putting former portions of the project outside it and reducing it to about $910 million.

Most major bridges are toll financed

Several major bridges are presently under construction around America, including a new East Span on the San Francisco Oakland Bay Bridge in California, the Tacoma Narrows Bridge Second Span in Washington, the Driscoll Bridge on the Garden State Parkway in New Jersey and the Woodrow Wilson Bridge in Washington, DC. Only the last is being funded by taxpayer revenues because the District manages to get special federal dispensation. The other three are all being financed with toll revenues. Major bridge projects in planning are the replacement of the Goethals Bridge in New Jersey-New York and the Tappan Zee Bridge over the Hudson River in New York. Both of these will be financed with tolls, probably as toll concessions.

The vast majority of great river crossings in the U.S. and around the world are toll financed because they are too expensive to be funded by motorist taxes. The annual money from gas taxes, whether at the federal or state level, almost never generates the funds to pay for such bridges or tunnels. Whereas a road can be built incrementally as money becomes available, a great bridge has to be built in one hit.

The realistic choice, then, that faces the St. Louis region is between using toll financing and deferring indefinitely construction on the bridge. Tolling could be done by a collaborative arrangement between the two states or it could be done under Missouri jurisdiction on Missouri territory.

There are, therefore, four logical options for toll financing:

(1) Bi-state toll bridge commission
(2) Missouri toll bridge commission or DOT toll division
(3) Bi-state call for private sector proposals for a toll concession
(4) Missouri call for private sector proposals for a toll concession

The first could require formation of a bi-state agency or use of a current agency with similar powers. It would require complementary legislation in each state. As an interstate compact, it most likely would require the U.S. Congress to grant it Constitutional standing through U.S. legislation, as well.

The second option is for Missouri to toll traffic of the new bridge on its side of the river by forming a Missouri Toll Bridge Authority, or even as a Toll District within Missouri DOT. Any of these public entities could issue bonds based on the prospective toll revenues.

Other options are to call for investor proposals to finance, build and operate a toll concession, sometimes referred to as a Public-Private Partnership (PPP). Again, this could be done on a bi-state basis (Option 3) or unilaterally by Missouri for toll collection strictly on Missouri territory (Option 4).

It would be more desirable for the concession to be done cooperatively by the two states. This would give Illinois a formal say in the terms of the concession and ensure representation of Illinois interests. It would also emphasize the regional character of the bridge. As a bi-state toll concession, both states would be represented on the selection panel and have a formal role in setting the terms of the concession contract. Moreover, Illinois residents have legitimate concerns about tolling that need to be addressed. The scope of this study did not include legal consultation on matters relating to variable tolling.

Goldman Sachs on concession advantages

Goldman Sachs points out major advantages in the toll concession model. They report:

> "A concession sale offers an opportunity for public entities, like the State of Missouri to monetize non-core assets while maximizing taxpayer benefit and transferring operating risk to equity investors. If structured properly, this form of PPP merges public interest with the deep pockets of private investors to effectively meet ever-growing infrastructure needs. The economics of a concession sale generally deliver a more efficient leveraging of an asset's revenues. First, unlike a traditional municipal financing, a concession sale provides an opportunity to capture the 'growth wedge' in future volume and toll and fee increases. Traditional municipal bond investors typically rely on historical revenues to determine leverage levels, which can constrain the total value of an asset, while equity investors tend to focus on growth and future returns.
>
> "In addition, tax treatment for depreciation and interest cost deductibility on a

concession sale can provide a lower cost of capital for the concessionaire than tax-exempt financing. Finally, the infrastructure investors with large portfolios of similar assets are able to improve operating efficiencies and capture economies of scale, thereby increasing the amount they are willing to pay for an asset."

In short, a concession shifts the risk away from taxpayers to investors and can raise a lot more capital for a given project than a public authority bond financing. Precedents have been addressed in Chapter 2.

On the St. Louis region project Goldman Sachs reports:

"A public-private partnership ('PPP') for the proposed I-70 Mississippi River Bridge (the 'Project') is a viable alternative to finance a portion of the estimated total cost of the Bridge and related roadway and interchange improvements. A wide range of values is achievable and will depend greatly on a variety of factors, including:

- Toll schedule and structure
- Variable Pricing (e.g., trucks/cars; peak/off-peak hours; electronic toll collection)
- Toll growth
- Maximum tolls
- Length of concession
- Capital expenditures required
- Operating cost allocation
- Demand elasticity
- Volume Growth"

Summary and Recommendations

We recommend that policymakers take prompt action to evaluate the benefits of raising the capital for the new Mississippi River Bridge by offering investors a long-term toll concession. This model is somewhat new in the U.S. but commonplace elsewhere. It gains more value for the public than a government toll authority, because investors bring equity and marketplace thinking to the job. They will look beyond the 30-year term typical for bonds and be prepared to invest for a longer term if the concession is up to 99 years. It is our belief that it is imperative, if for no other reason than to stem the rising costs of materials and labor, that the bridge is built by 2012.

We are fortunate that the existence of alternative river crossings – Poplar Street, the Eads, I-270 and other bridges - will provide competition for a private-enterprise bridge, forcing it to keep its toll rates affordable and its service excellent. Elsewhere, in places with less competition, far more detailed safeguards need to be written into a toll concession to prevent any abuse of monopoly power. In addition, details regarding the appropriate use of union workers and minority contracts can also be addressed in the toll concession agreement.

Large international toll operators can bring expertise and risk averaging to the Mississippi River Bridge in St. Louis. A single entity building a toll operation here is likely to be very risk averse because everything hinges on the financial result of this one bridge. Companies that build and operate many projects can average the risks. They are therefore prepared to pay a higher concession fee and/or finance a larger project.

Our recommendations are as follows:
1. Policymakers on both sides of the river should evaluate the benefits to a toll concessionaire and quickly attempt to get agreement on a bi-state approach to seeking investors for this concession with a goal of building the bridge by 2012. Ideally, this would be a bi-state effort.

2. The Missouri and Illinois Departments of Transportation should then seek expressions of interest and statements of qualification from companies. It is important to consider the entire spectrum of qualified concessionaires. Due to the length of experience and depth of knowledge on such projects, many international companies will be potential candidates and must be considered. A project this size should attract major players. One of the major benefits of private-sector involvement will be encouraging innovation within the plans and designs that are approved by state and federal authorities.

3. Missouri and Illinois Departments of Transportation should determine appropriate requirements regarding sensitivity to union and labor involvement and minority participation.

4. Experienced toll concession legal and financial advisors should be immediately engaged. There are now several teams of consultants around the country experienced in structuring and detailing a toll concession to ensure best value for the public, with transparency and encouragement of the best ideas. We want to emphasize the importance of retaining of counsel with direct, recent experience in successfully structuring similar deals in the U.S.

5. An investment-grade traffic and revenue study should be commissioned. Thus far, all the estimates of traffic are relatively rudimentary. The study's completion and release should be planned for the stage of final bids by potential concessionaires.

6. Proposals from the qualified global companies or groups should be reviewed based on bidders' ability to provide best-value proposals within the terms of the approved plans.

7. Based on recent experience, it is expected that bids will be in excess of the cost of the bridge. The excess funds should be distributed between Missouri and Illinois for appropriate use. For example, excess funds could be used to fund further infrastructure needs, to temporarily underwrite the cost of the tolls, etc.

8. Although any changes in the scope of the bridge are out of the scope of this taskforce, we did get input that the numbers of lanes currently designed may be needed in the very long term but may not be needed in the near future. Cost savings may be found by scaling back the number of lanes.

9. Innovations should be encouraged to attract regular commuters to the facility, including toll technology to allow non-stop movement, tolling by transponders and video at highway speed. Old-fashioned toll plazas should not be encouraged.

Attachment

For additional information please contact:

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Peter Samuel of TOLLROADSnews assisted with writing background materials for this report.

Memorandum

Date: January 25, 2006

To: The Regional Business Council

From: ***Goldman, Sachs & Co.***

Subject: Mississippi River Bridge Concession Sale

OVERVIEW

A public private partnership ("PPP") for the proposed I-70 Mississippi River Bridge (the "Project") is a viable alternative to finance a portion of the estimated total cost of the Project and related roadway and interchange improvements. A wide range of values is achievable and will depend greatly on a variety of factors, including:

- Toll schedule and structure
  - Variable Pricing (e.g., trucks/cars; peak/off-peak hours; electronic toll collection)
  - Toll growth
  - Maximum tolls
- Length of concession
- Capital expenditures required
- Operating cost allocation
- Demand elasticity
- Volume Growth

We have performed several preliminary valuations of a potential concession sale for the Project using varying key assumptions. Below we discuss these analyses and related assumptions, and the indicative values associated with each. In order to perform a thorough analysis of the potential value of a concession sale, a more detailed traffic report and financial projections will be required.

General Assumptions for all Preliminary Valuation Scenarios

All of the valuations discussed below rely upon certain general assumptions, listed below.

- Concessionaire assumes responsibility for payment of all operating and maintenance expenses associated with the Bridge.
- Concessionaire assumes responsibility for a set capital expenditures, to include base year expenditures of $1 million growing at 2.5% per year.
- Base year depreciation will offset capital expenditures, with additional accelerated depreciation over 39 years based on estimated purchase price

BASE CASE

Goldman Sachs "Base Case" valuation assumes the PPP of the Project is structured consists of the sale of a 75-year concession lease on the Project. Certain additional assumptions used in this preliminary valuation are listed below:

$2 Toll Scenario

Assumptions

- Average $2.00 each way toll beginning in 2013 (opening year of the Project) growing at 2.5% each year to adjust for inflation.
- 2013 total average daily traffic of 39,000 vehicles, growing to 46,000 by 2030. This is consistent with the conservative end of the range of estimates provided in the "New Mississippi River Bridge Funding Analysis (the "Traffic Study")."
- Volume growth after 2030 of 1.5% per year.
- 70% operating margin.

A preliminary valuation of a Mississippi River Bridge Project concession given the above parameters indicates a value range of approximately $350-440 million.

$3 Toll Scenario

Based on the demand elasticity implied in the Traffic Study, increasing the initial toll on the Bridge from $2.00 to $3.00 will have the net effect of increasing total revenue collected from the Project, and therefore the concession value. This is because, based on the projected traffic volumes in the Study, this toll increase does not decrease demand for the new Bridge sufficiently so as to more than offset the higher per-vehicle revenue. The results of a valuation assuming a $3.00 initial toll are below.

Assumptions

- Average $3.00 each way toll beginning in 2013 growing at 2.5% each year to adjust for inflation.
- 2013 average daily traffic of 28,000 vehicles, growing to 36,000 vehicles by 2030, in keeping with the most conservative estimates provided in the "New Mississippi River Bridge Funding Analysis."
- Volume growth after 2030 of 1.5% per year.
- 70% operating margin.

A preliminary valuation of a Mississippi River Bridge Project concession in this scenario results in an estimated value range of approximately $405-510 million.

AGGRESSIVE CASE

Revising certain of these assumptions to be more aggressive will significantly increase the potential concession sale value. By making three key changes to the Base Case valuations, the value of the concession sale can increase substantially.

1) Lengthen the concession period from 75 to 99 years.
2) Assume higher initial traffic and traffic growth than estimated in traffic volume than in "New Mississippi River Bridge Funding Analysis." This is the most significant value driver in the analysis.
3) Assume a higher operating margin of 75% through greater operating efficiency.

The reasonableness of these revised assumptions (with the exception of the lengthening of the concession term, which is a policy decision) will depend upon the results of a more thorough traffic demand study and an analysis of operating costs of similar tolled facilities. The magnitude of the impact of each of these factors depends upon the combination of valuation assumptions used. For example, a

more aggressive traffic volume growth assumption has a greater impact on the value of a 99-year concession that of a 75-year concession.

$2 Toll Scenario

In addition to the above revised assumptions, this scenario includes several additional assumptions related to tolls and traffic volume.

Assumptions

- Average $2.00 each way toll beginning in 2013 growing at 2.5% each year (same as Base Case).
- Opening year average daily traffic on 47,000 (the high end of the range provided for in the "New Mississippi River Bridge Funding Analysis" traffic study), growing at 2.5% per annum throughout the concession period.

A preliminary valuation of a Mississippi River Bridge Project concession given the above "Aggressive Case" parameters and a $2.00 initial toll indicates a value range of approximately $690-950 million.

$3 Toll Scenario

Assumptions

- Average $3.00 each way toll beginning in 2013 growing at 2.5% each year (same as Base Case).
- Opening year average daily traffic on 34,000 (the high end of the range provided in the Traffic Study), growing at 2.5% per annum throughout the concession period.

A preliminary valuation of a Mississippi River Bridge Project concession given the above "Aggressive Case" parameters and a $3.00 initial toll indicates a value range of approximately $750-1,025 million.

CONCLUSION

As stated previously, in order to determine which of the above cases is the most appropriate range of values for the Mississippi River Bridge Project concession sale, a thorough analysis of anticipated traffic, demand elasticity and projected operating, maintenance and capital costs will be required.